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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/521,498

08/29/2005

Georg Tempel

10808/201

9218

48581

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01/28/2009

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EXAMINER

WEISS, HOWARD

ART UNIT

PAPER NUMBER

2814

MAIL DATE

DELIVERY MODE

01/28/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,498	Applicant(s) TEMPEL, GEORG	
	Examiner Howard Weiss	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-28 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-21 is/are allowed.
- 6) ☒ Claim(s) 22-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Attorney's Docket Number: 10808/201

Filing Date: 8/29/2005

Continuing Data: 371 of PCT/DE03/02352 (07/11/2003); RCE filed 12/20/2008

Claimed Foreign Priority Date: 7/15/2002 (GEX)

Applicant(s): Tempel

Examiner: Howard Weiss

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/20/2008 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 22 to 24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Legoues et al. (U.S. Patent No. 5,810,924).

Legoues et al. show all aspects of the instant invention (e.g. Figure 1) including:

- forming a Si crystalline carrier **12** with a (100) surface orientation with a carrier lattice constant
- forming a SiGe crystalline stress generator layer **16** with a carrier lattice constant
- forming a CaF₂ insulating stress-transmitting layer **18** (Column 15 Lines 13 to 24) with a first lattice constant different from the carrier lattice constant

- forming a Si stress-absorbing, crystalline semiconductor layer **22** with a second lattice constant similar to the first lattice constant
- forming a high dielectric constant gate dielectric **26** and a metal control layer **35** on said Si stress-absorbing semiconductor layer and source/drain regions **37,38** in said Si stress-absorbing semiconductor layer

In reference to the claim language pertaining to the enhancement of mechanical stress transmission by the insulating stress transmission layer and the improvement of charge carrier mobility and other electrical properties by the stress absorbing layer, the claiming of a new use, new function, or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and *In re Swinehart*, 439 F. 2d 210, 169 USPQ 226 (CCPA 1971); please see MPEP § 2112. Since Legoues et al. show all the features of the claimed invention, the enhancement of mechanical stress transmission by the insulating stress transmission layer and the improvement of charge carrier mobility and other electrical properties by the stress absorbing layer are an inherent property of Legoues et al.'s invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 25, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Legoues et al.

Legoues et al. discloses the claimed invention (Paragraph 3) except for explicitly forming and patterning the gate dielectric and control layer to define a channel a

channel length L such that the stress-absorbing layer thickness d is less than one-third L. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form and pattern the gate dielectric and control layer to define a channel a channel length L such that the stress-absorbing layer thickness d is less than one-third L, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Legoues et al. state that d can be of arbitrary thickness (Column 6 Lines 55 and 56) and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of invention. See Supreme Court Decision in *KSR International Co. v. Teleflex Inc.*, 550 U.S. --, 82 USPQ2d 1385 (2007).

Additionally, since the Applicant has not established the criticality of the thicknesses and lengths stated and since these thicknesses and lengths are in common use in similar devices in the art, it would have been obvious to one of ordinary skill in the art to use these values in the device of Legoues et al. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Allowable Subject Matter

6. Claims 9 to 21 are allowed.
7. The following is a statement of reasons for the indication of allowable subject matter:
A method of manufacturing semiconductor device having stress-absorbing layers as claimed including an insulating stress transmission layer having a lattice constant matched to the lattice constant of the carrier material and forming a stress generator layer having a lattice different from the carrier material in its final atom layer and

forming a insulating stress transmission layer having a lattice constant different from the stress generator layer and the forming material could not be anticipated nor, in combination, be rendered obvious over the prior art of record.

Response to Arguments

8. Applicant's arguments filed 10/10/2008 have been fully considered but they are not persuasive. Claims 22 to 28 remain rejected for those reason stated in the previous office action. Claim 9 to 21 are allowed for the reasons stated above. These reasons do not apply to Claims 22 to 28 since these claims do not have the limitations which rendered them obvious over the prior art of record. In view of these reasons and those set forth in the present office action, the rejections of the stated claims stand.

Conclusion

9. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via Howard.Weiss@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.
11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

12. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/ E21.125	thru 1/26/2009
Other Documentation: none	
Electronic Database(s): EAST	thru 1/26/2009

HW/hw
28 January 2009

/Howard Weiss/
Primary Examiner
Art Unit 2814